

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-018776**Date Inspected:** 14-Dec-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG**Summary of Items Observed:**

CWI Inspector: Mr. Bao Qian

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai China, for the purpose of monitoring welding and fabrication.

Blast shop 4

ZPMC requested Caltrans personnel to perform visual inspections of West Tower Lift 5 and North Tower Lift 5 exterior skin B, C, D, E surfaces and the interior surfaces of the two rectangular shaped center cells located between skins C and E on December 14, 2010 at around 23:00 hours following the initial pre-blast cleaning of the steel surfaces. This QA Inspector along with other QA Inspectors performed random visual inspections of these areas. On North tower lift 5 this QA Inspector visually observed approximately 10 locations that required grinding to resolve visual weld spatter, arc strikes, shallow nicks, scrapes, and other minor surface rejections and two areas that require magnetic particle inspections. This QA Inspector observed the exterior surface of west tower skin plate E had two locations with gouges which require weld repairs. This QA Inspector issued a "Blast Inspection" report to document the results of these inspections.

OBG Bay 13

This QA Inspector observed ZPMC welder Mr. Li Zaijun, stencil 037996 used shielded metal arc welding

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procedure WPS-345-SMAW-3G(3F)-FCM-Repair-1 make weld repairs to OBG segment 13AE grillage weld SA7038-051. ABF CWI Mr. Bao Qian presented this QA Inspector with weld repair document B-CWR-2435 that documents the repair of this weld. This QA Inspector observed a welding current of approximately 160 amps. This QA Inspector observed Mr. Li Zaijun appeared to be certified to make this weld and the base materials were heated with electric heaters to preheat and maintain the base material temperature of this weld joint. Items observed on this date appeared to generally comply with applicable contract documents.

### OBG Bay 14

This QA Inspector observed ZPMC welder Mr. Wang Li, stencil 044772 used shielded metal arc welding procedure specification WPS-B-P-2114-FCM-1 to complete weld SEG3011N-269. This QA Inspector observed a welding current of approximately 160 amps, a torch had been used to preheat the base materials and Mr. Wang Li appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Cao Xinglong, stencil 069683 used shielded metal arc welding procedure specification WPS-B-P-2114-FCM-1 to complete weld SEG3011N-219. This QA Inspector observed a welding current of approximately 178 amps, a torch was used to preheat the base materials and Mr. Wang Li appeared to be certified to make this weld. This QA Inspector observed that the maximum welding current listed in the welding procedure specification is 160 amps and that Mr. Cao Xinglong had a welding current that was approximately 18 amps above this maximum limit. This QA Inspector showed ABF CWI Mr. Bao Qian a photograph of the welding current meter and he agreed the welding current was too high. Mr. Cao Xinglong completed this weld prior to Mr. Bao Qian being able to adjust this welding machine to a lower welding current. Items observed on this date do not appear to fully comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wu Hai Jun, stencil 201087 used shielded metal arc welding procedure specification WPS-B-P-2112-FCM-1 to complete weld SEG3011N-184. This QA Inspector observed ZPMC has recorded a welding current of 160 amps, a torch was used to preheat the base materials and Mr. Wu Hai Jun appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Hong Liang stencil 050242 used flux cored welding procedure WPS-B-T-2232-ESAB to make OBG segment 13AE welds SEG3007M-251 and SEG3007P-209. ZPMC QC had recorded a welding current of 304 amps, 26.0 volts and a welding travel speed of 309mm per minute. Mr. Hong Liang appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zhu Jibo, stencil 055564 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 13AE welds SEG3007M-252 and SEG3007AY-048. ZPMC QC had recorded a welding current of 248 amps, 25.8 volts and a welding travel speed of 155mm per minute. Mr. Zhu Jibo appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Li Zujun, stencil 052696 used flux cored welding procedure

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WPS-B-T-2232-ESAB to make OBG segment 13AE weld SEG3007-166. ZPMC QC had recorded a welding current of 303 amps, 25.9 volts and a welding travel speed of 278mm per minute. Mr. Li Zujun appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Jian Zhou, stencil 067571 used shielded metal arc welding procedure WPS-B-P-2214-TC-U4B-FCM-1 to make OBG segment 13AE weld SEG3007AD-018. This QA Inspector observed ZPMC QC has recorded a welding current of 157 amps 24.7 volts and a welding travel speed of 116 mm per minute. This QA Inspector observed Mr. Jian Zhou appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Chen Hongjun, stencil 067609 used shielded metal arc welding procedure WPS-B-P-2214-TC-U4B-FCM-1 to make OBG segment 13AE weld SEG3007AD-019. This QA Inspector observed ZPMC QC has recorded a welding current of 155 amps 24.3 volts and a welding travel speed of 112 mm per minute. This QA Inspector observed Mr. Chen Hongjun appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Jin Rong, stencil 066471 used flux cored welding procedure WPS-B-T-2232-ESAB to make OBG segment 13AE weld SEG3007Q-192 and SEG3007N-243. ZPMC QC had recorded a welding current of 296 amps, 24.5 volts and a welding travel speed of 258mm per minute. Mr. Jin Rong appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Duan Yangang, stencil 066422 used shielded metal arc welding procedure WPS-345-SMAW-3G(3F)-Repair to make a weld repair of ultrasonic rejections to OBG segment 13AE weld SEG3007L-046. ABF CWI Mr. Bao Qian presented this QA Inspector with weld repair document B-WR-18557 that documents the repair of this weld. QC Inspectors have recorded a welding current of 150 amps. This QA Inspector observed Mr. Duan Yangang appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Yang Yunfeng, stencil 215553 used shielded metal arc welding procedure WPS-345-SMAW-3G(3F)-Repair to make a weld repair of ultrasonic rejections to OBG segment 13AE weld SEG3007Q-105. ABF CWI Mr. Bao Qian presented this QA Inspector with weld repair document B-WR-18394 that documents a welding current of 153 amps, 24.7 volts and a travel speed of 114mm per minute. This QA Inspector observed Mr. Yang Yunfeng appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Kua Wen Shan stencil 054013 used shielded metal arc welding procedure specification WPS-345-SMAW-3G(3F)-FCM-Repair-1 to make repairs to weld to make repairs of OBG segment 14E Anchor Plate weld AP3031-333. This QA Inspector observed a welding current of approximately 188 amps and the base materials were preheated with an electric heater. This weld had been ultrasonically rejected and was being repaired per weld repair document B-WR-18948. This QA Inspector observed that the maximum welding current listed in the welding procedure specification is 160 amps and that Mr. Kua Wen Shan had a welding current that was approximately 28 amps above this maximum limit. This QA Inspector showed ABF

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CWI Mr. Bao Qian the welding current meter and the welding procedure specification and he agreed the welding current was too high. ZPMC personnel adjusted this welding machine to a welding current of approximately 150 amps. This QA Inspector observed Mr. Kua Wen Shan appeared to be certified to make this weld. Following adjustment of the welding machine current, items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Bian Henggui stencil 051359 used shielded metal arc welding procedure specification WPS-345-SMAW-3G(3F)-FCM-Repair-1 to make repairs to weld to make repairs of OBG segment 14E Anchor Plate weld AP3031-395. This QA Inspector observed ZPMC has recorded a welding current of 159 amps and the base materials were preheated with an electric heater. This weld had been ultrasonically rejected and was being repaired per weld repair document B-WR-18938. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Hong Liang, stencil 200113 used shielded metal arc welding procedure specification WPS-345-SMAW-3G(3F)-FCM-Repair-1 to make repairs to weld to make repairs of OBG segment 14E Anchor Plate weld AP3031-363. This QA Inspector observed a welding current of approximately 194 amps and the base materials were preheated with an electric heater. This weld had been ultrasonically rejected and was being repaired per weld repair document B-WR-18900. This QA Inspector observed that the maximum welding current listed in the welding procedure specification is 160 amps and that Mr. Kua Wen Shan had a welding current that was approximately 34 amps above this maximum limit. This QA Inspector showed ABF CWI Mr. Bao Qian the welding current meter and the welding procedure specification and he agreed the welding current was too high. ZPMC personnel adjusted this welding machine to a welding current of approximately 150 amps. This QA Inspector observed Mr. Hong Liang appeared to be certified to make this weld. Following adjustment of the welding machine current, items observed on this date appeared to generally comply with applicable contract documents. See the photograph below for additional information.

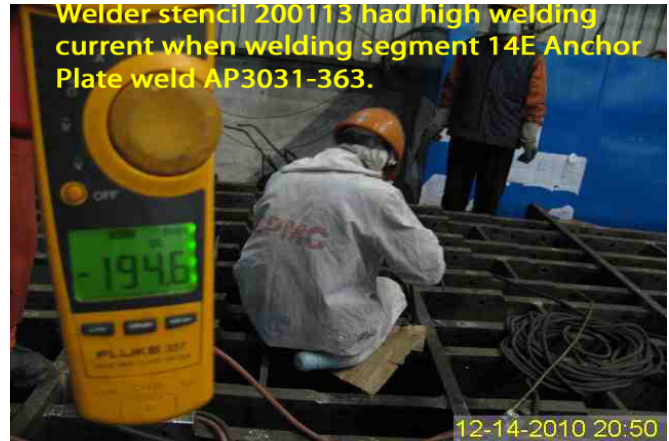
This QA Inspector observed ZPMC welder Mr. Ye Bing stencil 066733 used flux cored welding procedure WPS-B-T-2231-ESAB to make OBG segment 13AE weld SEG3007Y-281. This QA Inspector measured a welding current of approximately 330 amps, 32.2 volts and that Mr. Yuan Wensong appeared to be certified to make these welds. This QA Inspector observed that the maximum welding parameters listed in the welding procedure specification are 320 amps and is 26.6 volts and that Mr. Ye Bing had a welding current that was approximately 10 amps above the maximum limit and a voltage that was approximately 2.4 volts above the maximum limit. This QA Inspector showed ZPMC QC Inspector Mr. Zhong Guo Hui and ABF CWI Mr. Bao Qian. the welding procedure specification and he agreed the welding current and voltage were too high. Mr. Zhong Guo Hui adjusted the welding machine to approximately 280 amps and 26 volts. Following adjustment of the welding machine, items observed on this date appeared to generally comply with applicable contract documents.

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### Summary of Conversations:

See Above.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact James Devey +8615000026784, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Dawson,Paul	Quality Assurance Inspector
<b>Reviewed By:</b>	Carreon,Albert	QA Reviewer

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